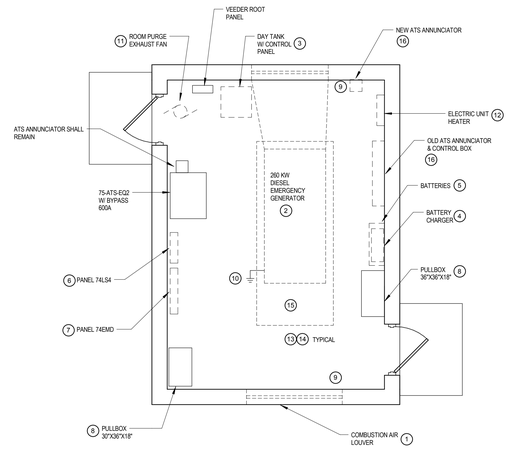
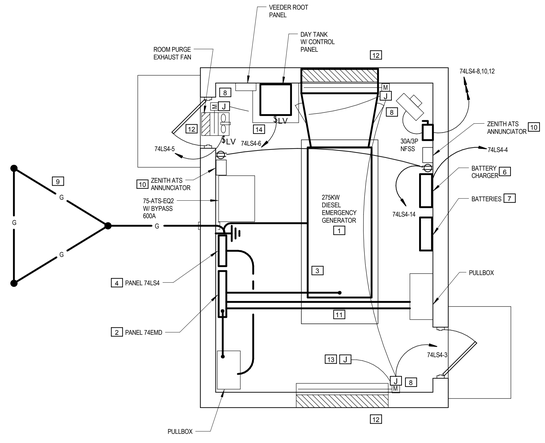


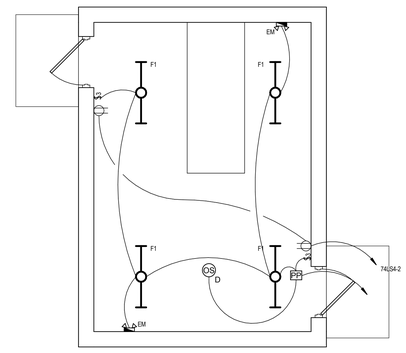
1 ELECTRICAL DEMOLITION WORK PLAN - GENERATOR BUILDING 141

1/4" = 1'-0"



2 ELECTRICAL NEW WORK PLAN - GENERATOR BUILDING 141

1/4" = 1'-0"



3 ELECTRICAL NEW WORK PLAN - GENERATOR BUILDING 141

1/4" = 1'-0"

GENERAL DEMOLITION NOTES:

1. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND COORDINATE ALL DEMOLITION ACTIVITIES WITH ANY NEW CONSTRUCTION AS INDICATED WITHIN THE CONSTRUCTION DOCUMENTS. DO NOT SCALE DRAWINGS.
2. CONTRACTOR SHALL PERFORM ALL NECESSARY DEMOLITION ACTIVITIES AS REQUIRED FOR INSTALLATION OF NEW CONSTRUCTION AS INDICATED WITHIN THE CONSTRUCTION DOCUMENTS. COORDINATE WITH THOSE DOCUMENTS FOR EXACT DIMENSIONS AND LOCATIONS OF FINISHED WORK.
3. ALL DEMOLITION NOT SPECIFICALLY INDICATED, BUT NECESSARY TO COMPLETE THE PROJECT AS INDICATED ON THE CONSTRUCTION DOCUMENTS, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
4. THE CONTRACTOR SHALL INSPECT AND ACCESS EACH SPACE AND FULFILL THE INTENT OF THE WORK REQUIRED BY THE CONTRACT DOCUMENTS. DEVIATIONS REQUIRED BY EXISTING FIELD CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO PROCEEDING WITH THE WORK.
5. ANY CUTTING AND REMOVAL INDICATED ON THE CONSTRUCTION DOCUMENTS ARE GENERAL INDICATIONS ONLY AND MAY NOT NECESSARILY SHOW THE FULL EXTENT OF CUTTING AND REMOVAL NECESSARY.
6. THROUGHOUT THE COURSE OF DEMOLITION ACTIVITIES, PROPERLY PROTECT ANY EXISTING CONSTRUCTION INDICATED TO REMAIN. EXERCISE CARE WHEN REMOVING ADJACENT CONSTRUCTION AND PROPERLY REPAIR (TO ORIGINAL CONDITION) ANY AREAS SCHEDULED TO REMAIN THAT SUSTAIN DAMAGE AS A RESULT OF DEMOLITION ACTIVITIES.
7. PERFORM ALL WORK REQUIRED TO PROTECT BUILDING OCCUPANTS AND EXISTING BUILDING UTILITIES. THE BUILDING WILL REMAIN IN OPERATION THROUGHOUT THE COURSE OF DEMOLITION AND CONSTRUCTION ACTIVITIES.
8. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE ALL NECESSARY TEMPORARY BRACING AND SHORING AS REQUIRED TO MAINTAIN THE INTEGRITY AND STRUCTURAL STABILITY OF THE BUILDING AND ITS INDIVIDUAL ELEMENTS.
9. EXCEPT AS NOTED OTHERWISE, REMOVE ALL DEMOLISHED MATERIALS FROM THE SITE AND DISPOSE OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL LAWS REGULATIONS. DO NOT BURN, BURY, OR SELL MATERIALS ON THE PROJECT SITE. AT THE COMPLETION OF EACH WORK DAY, CLEAN THE ENTIRE WORK AREA AND LEAVE IN A NEAT CONDITION FREE OF DEBRIS AND RUBBISH.
10. STRUCTURAL, MECHANICAL, PLUMBING, ELECTRICAL, TELECOMMUNICATION, AND CIVIL DOCUMENTS PROVIDE ADDITIONAL DEMOLITION REQUIREMENTS FOR EACH PRIME CONTRACT. ALL PRIME CONTRACTORS ARE RESPONSIBLE FOR FAMILIARIZING THEMSELVES WITH THOSE DOCUMENTS THAT MAY PROVIDE ADDITIONAL DEMOLITION REQUIREMENTS BEYOND THOSE SPECIFICALLY INDICATED ON THE ARCHITECTURAL DEMOLITION PLANS.
11. THROUGHOUT THE COURSE OF DEMOLITION ACTIVITIES, THE CONTRACTOR SHALL PATCH, REPAIR AND PREPARE EXISTING EXPOSED SURFACES AND/OR ADJACENT MATERIAL AS REQUIRED TO RECEIVE NEW FINISHES.
12. CAREFULLY REMOVE AND DELIVER TO THE OWNER ANY EXISTING FIRE EXTINGUISHERS FOUND WITHIN THE LIMIT OF DEMOLITION ACTIVITIES.
13. THE OWNER RESERVES THE RIGHT TO REMOVE ANY ITEMS SCHEDULED FOR DEMOLITION PRIOR TO THE START OF DEMOLITION ACTIVITIES AND CLAIM ANY ITEMS REMOVED BY THE CONTRACTOR THROUGHOUT THE COURSE OF DEMOLITION.

ELECTRICAL GENERAL NOTES

1. THE DRAWINGS APPROXIMATE THE SIZE AND DETAIL OF THE EXISTING CONDITIONS AND THIS SHOULD NOT BE INTERPRETED TO BE A PRECISE REPRESENTATION. THE CONTRACTOR SHALL VISIT AND EXAMINE CAREFULLY THE AREAS AFFECTED BY THIS WORK TO BECOME FAMILIAR WITH THE EXISTING CONDITIONS AND WITH THE DIFFICULTIES THAT WILL AFFECT THE EXECUTION OF THIS WORK. THIS VISIT SHALL BE MADE PRIOR TO SUBMITTING A BID FOR THE WORK OF THE CONTRACT.
2. FURNISH AND INSTALL ALL REQUIRED CONDUITS, WIRES, CABLES, FITTINGS, BOXES, HARDWARE, ETC. IN ORDER TO MAKE A COMPLETE ELECTRICAL SYSTEM READY FOR OPERATION. CONDUITS SHALL BE RUN IN THE LEAST OBTRUSIVE MANNER POSSIBLE.
3. FINAL LOCATION OF ALL EQUIPMENT SHALL BE DETERMINED IN THE FIELD AND SHALL BE INSTALLED AS DIRECTED BY THE CONTRACTING OFFICER REPRESENTATIVE (COR). WHERE STRUCTURAL OPENINGS ARE NOT AVAILABLE, THE CONTRACTOR SHALL CORE DRILL WALLS AND FLOORS AS REQUIRED TO PERMIT THE PASSAGE OF CONDUITS. THE CONTRACTOR SHALL PROVIDE A MARKED-UP PLAN WITH LOCATIONS AND SIZES OF PENETRATIONS FOR REVIEW AND APPROVAL OF THE COR PRIOR TO ROUGH-IN.
4. AT THE COMPLETION OF INSTALLATIONS, THE CONTRACTOR SHALL FILL IN AND WATERPROOF OR FIRESTOP ALL PENETRATIONS WITH MATERIALS PER THE SPECIFICATIONS. ALL PENETRATIONS THROUGH FIRE RATED ASSEMBLIES SHALL HAVE A FIRE STOPPING MATERIAL THAT MEETS OR EXCEEDS THE RATING OF THE ASSEMBLY.
5. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO INSTALL ALL FEEDER RUNS IN CONTINUOUS (I.E. NO CABLE BREAKS). IF SPLICING OF CABLES IN BOXES BECOMES NECESSARY, USE AN INSULATED MECHANICAL SPICE BLOCK ASSEMBLY.
6. ALL WIRING METHODS FOR THIS PROJECT SHALL BE INSTALLED IN COMPLETE ACCORDANCE WITH THE LATEST VERSION OF THE NATIONAL ELECTRIC CODE, ARTICLE 300. ALL WIRING SHALL BE INSTALLED IN A UL LISTED METHOD.

REQUIRED OUTAGES

1. OUTAGES SHALL NOT BE PERFORMED UNTIL ALL TEMPORARY AND/OR REDUNDANT FEEDS ARE IN PLACE AND OPERATIONAL.
2. OUTAGES SHALL BE KEPT TO A MINIMUM DURATION AS SOME EQUIPMENT HAS LIMITED BATTERY BACK UP TIME. THE ELECTRICAL CONTRACTOR SHALL COORDINATE OUTAGES WITH COR, AND MAKE ALL TEMPORARY PROVISIONS TO POWER ESSENTIAL EQUIPMENT DURING THE OUTAGE.

DEMOLITION KEYED NOTES

1. REMOVE THE EXISTING LOUVER FOR REMOVAL OF THE EXISTING EMERGENCY GENERATOR. REFER TO DETAIL ON SHEET 141-E600. EXISTING EMERGENCY GENERATORS SHALL BE REMOVED THROUGH THIS OPENING AND THE NEW EMERGENCY GENERATOR SHALL BE INSTALLED THROUGH THIS LOUVER. INFILL OPENING ONCE NEW EMERGENCY GENERATOR IS INSTALLED.
2. REMOVE THE EXISTING EMERGENCY GENERATOR, INCLUDING ALL CONDUIT, WIRING, PIPING, AND CONNECTIONS TO ALL GENERATOR ACCESSORIES.
3. REMOVE THE EXISTING DAY TANK AND ALL PIPING TO THE GENERATOR AND TO THE FUEL TANK.
4. REMOVE THE EXISTING BATTERY CHARGER, CONDUIT AND WIRING.
5. REMOVE THE EXISTING STARTING BATTERIES, AND CABLING TO THE EMERGENCY GENERATOR.
6. REMOVE THE EXISTING PANELBOARD "74LS4" AND ALL BRANCH WIRING TO DEVICES INDICATED TO BE REMOVED.
7. REMOVE THE EMERGENCY DISTRIBUTION PANELBOARD "74EMD". DISCONNECT THE FEEDER TO THE ATS IN BUILDING 74. FEEDER SHALL BE RECONNECTED TO THE NEW PANELBOARD ONCE INSTALLED. MODIFY CONDUIT AS REQUIRED FOR THE NEW INSTALLATION.
8. THE EXISTING PULLBOX SHALL REMAIN. MODIFY AS REQUIRED FOR THE NEW FEEDERS TO/FROM NTS NEW PANELBOARDS.
9. DISCONNECT AND REMOVE POWER TO THE EXISTING MOTORIZED LOUVERS.
10. REMOVE ALL GROUNDING OF THE EMERGENCY GENERATOR, INCLUDING ALL GROUND RODS LOCATED OUTSIDE OF THE BUILDING.
11. REMOVE POWER TO THE EXHAUST FAN.
12. REMOVE POWER TO THE ELECTRIC UNIT HEATER.
13. REMOVE ALL BRANCH CONDUITS AND WIRING FROM THE PANELBOARD FOR ALL EQUIPMENT BEING REMOVED.
14. REMOVE ALL LIGHTING, EMERGENCY BATTERY PACKS, RECEPTACLES AND SWITCHES FROM THIS ROOM. REMOVE ALL CONDUIT AND WIRING BACK TO THE SOURCE PANELBOARD.
15. REMOVE EXISTING CONCRETE HOUSEKEEPING PAD. PREP CONCRETE SLAB FOR INSTALLATION OF NEW PAD.
16. REMOVE THE EXISTING OLD ATS CONTROLLER. NEW ZENITH CONTROLLER SHALL REMAIN. REMOVE ALL WIRING BACK TO THE SOURCES. CONTROL WIRING AND CONDUIT FOR THE ZENITH ATS SHALL BE REWORKED ONCE THE OLD CONTROLLER IS REMOVED. PROVIDE NEW CONDUIT AS REQUIRED. ZENITH ANNUNCIATOR SHALL BE REINSTALLED IN THE SAME APPROXIMATE LOCATION.

HAZARDOUS MATERIALS ALERT

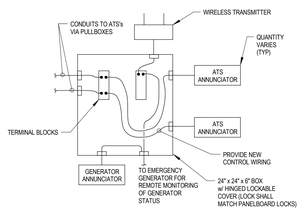
NOTE: THE EXISTING GENERATOR INSTALLATION IS KNOWN TO CONTAIN ASBESTOS. THE FOLLOWING ITEMS ARE POSITIVE FOR ASBESTOS CONTAINING MATERIAL:

1. RADIATOR EXHAUST PLENUM
2. EXHAUST SILENCER INSULATION

FOLLOW ALL ABATEMENT PROCEDURES AS DIRECTED BY THE VAMC FACILITY PROCEDURES.

NEW WORK KEYED NOTES

1. NEW EMERGENCY GENERATOR. SEE DETAIL ON THIS SHEET FOR MORE INFORMATION.
2. NEW PANELBOARD "74EMD", 208/120V, 3PH,4W, INSTALLED IN THE SAME LOCATION AS THE EXISTING. MODIFY EXISTING CONDUITS AS REQUIRED.
3. NEW OVERHEAD FEEDER FROM EMERGENCY GENERATOR.
4. NEW PANELBOARD "74LS4", 208/120V, 3PH, 4W INSTALLED IN THE SAME LOCATION AS THE EXISTING. MODIFY EXISTING CONDUITS AS REQUIRED.
5. NEW DAYTANK. PROVIDE POWER TO PUMPS. PROVIDE ALL CONTROL WIRING PER THE SPECIFICATIONS.
6. PROVIDE POWER TO THE BATTERY CHARGER FROM THE CIRCUIT INDICATED.
7. PROVIDE A FLOOR MOUNTED BATTERY RACK FOR THE EMERGENCY GENERATOR STARTING BATTERIES. EXTEND ALL CABLING TO THE EMERGENCY GENERATOR PER THE MANUFACTURERS REQUIREMENTS.
8. PROVIDE POWER TO THE MOTORIZED LOUVERS. SEE DETAIL FOR ADDITIONAL INFORMATION.
9. PROVIDE NEW GROUNDING TRIAD. INSTALL GROUNDING ELECTRODE CONDUCTOR THROUGH THE WALL TO THE EQUIPMENT GROUND BUS. PROVIDE A NON-METALIC SLEEVE THROUGH THE WALL WITH A NON-METALIC LB-FITTING TO BELOW GRADE FOR THE BARE CONDUCTOR. SEAL LB-FITTING WITH AN APPROPRIATE FLEXIBLE SEALANT ON BOTH THE EXTERIOR AND INTERIOR OF THE BUILDING.
10. LOCATION OF REINSTALLED ZENITH ATS ANNUNCIATORS. SEE DEMOLITION KEYNOTES FOR ADDITIONAL INFORMATION.
11. PROVIDE NEW CONCRETE HOUSEKEEPING PAD, 12'-0"X6'-0"X6". LOCATE IN THE FIELD BASED ON EXACT GENERATOR INSTALLED.
12. REFER TO DETAIL ON SHEET 141-E600 FOR GENERAL CONSTRUCTION WORK RELATED TO THE NEW LOUVERS.
13. PROVIDE POWER TO EXHAUST STACK SOLENOID VALVE.
14. PROVIDE A NEW 6" CONCRETE HOUSEKEEPING PAD UNDER NEW DAY TANK.



7 EMERGENCY GENERATOR CONTROL CABINET

NOT TO SCALE

PANEL: 74LS4

BUSS: 100A MAIN: 100A MCB
VOLTAGE: 208/120V
PHASE: 3 WIRES: 4
MOUNTING: SURFACE
A.I.C. RATING: SEE NOTE 1
SUB-FEED : N/A

NO	DESCRIPTION	WIRE SIZE	LOAD	BRKR	PH	BRKR	LOAD	WIRE SIZE	DESCRIPTION	NO
1	LIGHTING	2#12+1#12G	600	20A-1P	A--	20A-1P	400	2#12+1#12G	RECEPTACLES	2
3	MOTORIZED DAMPERS	2#12+1#12G	300	20A-1P	-B-	20A-1P	200	2#12+1#12G	BATTERY CHARGER	4
5	EXHAUST FAN	2#12+1#12G	1000	20A-1P	--C	20A-1P	1000	2#12+1#12G	DAY TANK	6
7	GENERATOR HEATERS	2#12+1#12G	1000	20A-1P	A--		2500			8
9	WATER JACKET HEATERS	2#10+1#10G	2500	30A-2P	-B-	30A-3P	2500	3#10+1#10G	UNIT HEATER	10
11			2500		--C		2500			12
13	WATER JACKET HEATERS	2#10+1#10G	2500	30A-2P	A--	20A-1P	200	2#12+1#12G	ATS ANNUNCIATOR	14
15			2500		-B-	20A-1P	864	2#12+1#12G	FUEL OIL PACKAGED PUMP	16
17	TANK LEVEL AND TANK LEAK	2#12+1#12G	200	20A-1P	--C	20A-1P	0		SPARE	18
19	SPARE		0	20A-1P	A--	20A-1P	200	2#12+1#12G	FUEL OIL POLISHING ASS'Y	20
21	SPARE		0	20A-1P	-B-	20A-1P	0		SPARE	22
23	SPARE		0	20A-1P	--C	20A-1P	0		SPARE	24
25	SPACE		0		A--		0		SPACE	26
27	SPACE		0		-B-		0		SPACE	28
29	SPACE		0		--C		0		SPACE	30
31	SPACE		0		A--		0		SPACE	32
33	SPACE		0		-B-		0		SPACE	34
35	SPACE		0		--C		0		SPACE	36
37	SPACE		0		A--		0		SPACE	38
39	SPACE		0		-B-		0		SPACE	40
41	SPACE		0		--C		0		SPACE	42
			4100	A:	7400	A:	3300			
			5300	B:	8864	B:	3564			
			3700	C:	7200	C:	3500			

TOTALS

FED FROM: PANEL 74-LSD (74-LSD LOCATED IN BUILDING #74)
LOCATION: BUILDING 141
REMARKS: SURGE SUPPRESSOR

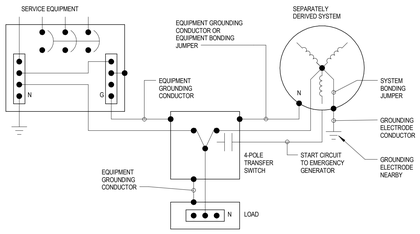
L-L VOLTAGE: 208V
CONNECTED LOAD: 23.464KW
CONNECTED AMPS: 65.2A

SHORT CIRCUIT RATINGS OF EQUIPMENT

ALL A/C RATINGS SHALL BE DETERMINED BY THE RESULTS OF THE SHORT CIRCUIT / COORDINATION / ARC FLASH STUDY. SEE SPECIFICATIONS FOR DETAILS

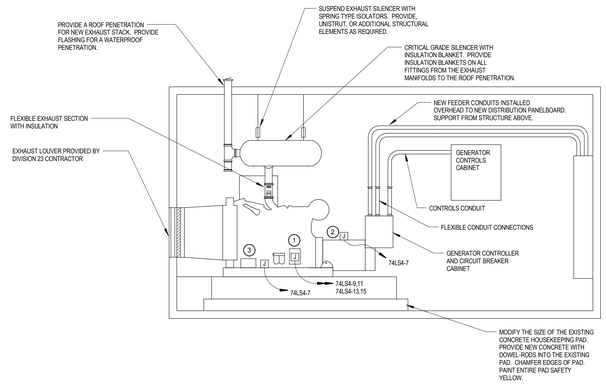
GENERAL PANEL NOTES:

1. AS DETERMINED BY STUDY.
2. ALL REPLACEMENT PANELBOARDS SHALL HAVE A TYPEWRITTEN DIRECTORY TO MATCH THE DIRECTORY OF THE PANEL THAT WAS REPLACED



4 EMERGENCY GENERATOR GROUNDING 4-POLE TRANSFER SWITCH DETAIL

NOT TO SCALE

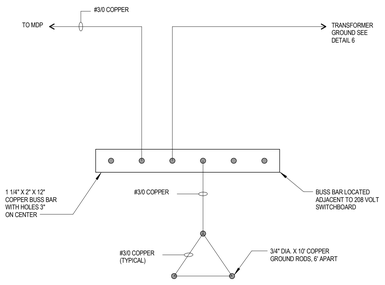


GENERATOR ACCESSORIES:

1. ELECTRIC BLOCK HEATER (QTY OF 2)
2. ALTERNATOR STRIP HEATER
3. ELECTRIC BATTERY BLANKET

5 EMERGENCY GENERATOR REQUIREMENTS

1/8" = 1'-0"



6 GROUND SYSTEM DETAIL

NOT TO SCALE

METHOD OF PROCEDURE (M.O.P.) REQUIRED

M.O.P SHALL INCLUDE THE FOLLOWING:

- OUTAGES AND DURATIONS.
- STEP BY STEP METHOD OF EQUIPMENT REPLACEMENT.
- SEQUENCE OF STEPS TO COMPLETE WORK.
- TEMPORARY GENERATOR / POWER REQUIRED AND AREAS AFFECTED.
- FOR ALL ADDITIONAL M.O.P. DIRECTIONS, REFER TO SPECIFICATIONS.
- NOTIFICATION AND APPROVAL BY VA PERSONNEL.

NOTE: NO WORK SHALL BE PERMITTED ON ANY ENERGIZED EQUIPMENT.

NORTH

CONSTRUCTION DOCUMENTS

Revisions:	Date

CONSULTANTS:

SEAL

COMMONWEALTH OF VIRGINIA
JASON J. DECHECK
Lic. No. 052449
PROFESSIONAL ENGINEER

ARCHITECTS/ENGINEERS:

A|E works

6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com

AE Works Project Number: 13-028

Drawing Title: ELECTRICAL DEMOLITION / NEW WORK PLAN - GENERATOR BUILDING 141

Approved: Project Director

Project Title: SALEM VA - CORRECT ELECTRICAL DEFICIENCIES

Location: 1970 ROANOKE BLVD. SALEM, VA 24153

Date: 07/25/14 **Checked:** JD **Drawn:** TA

Project Number: 658-13-102

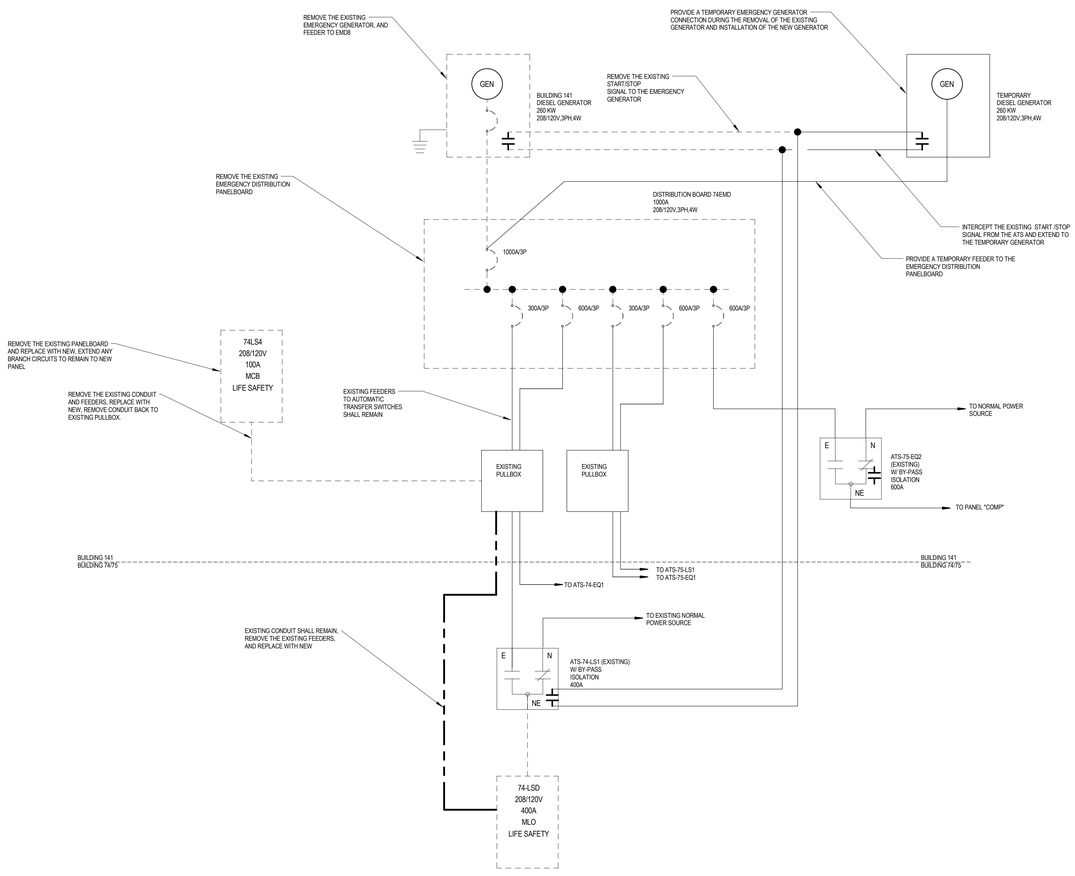
Building Number: 141

Drawing Number: 141-E100

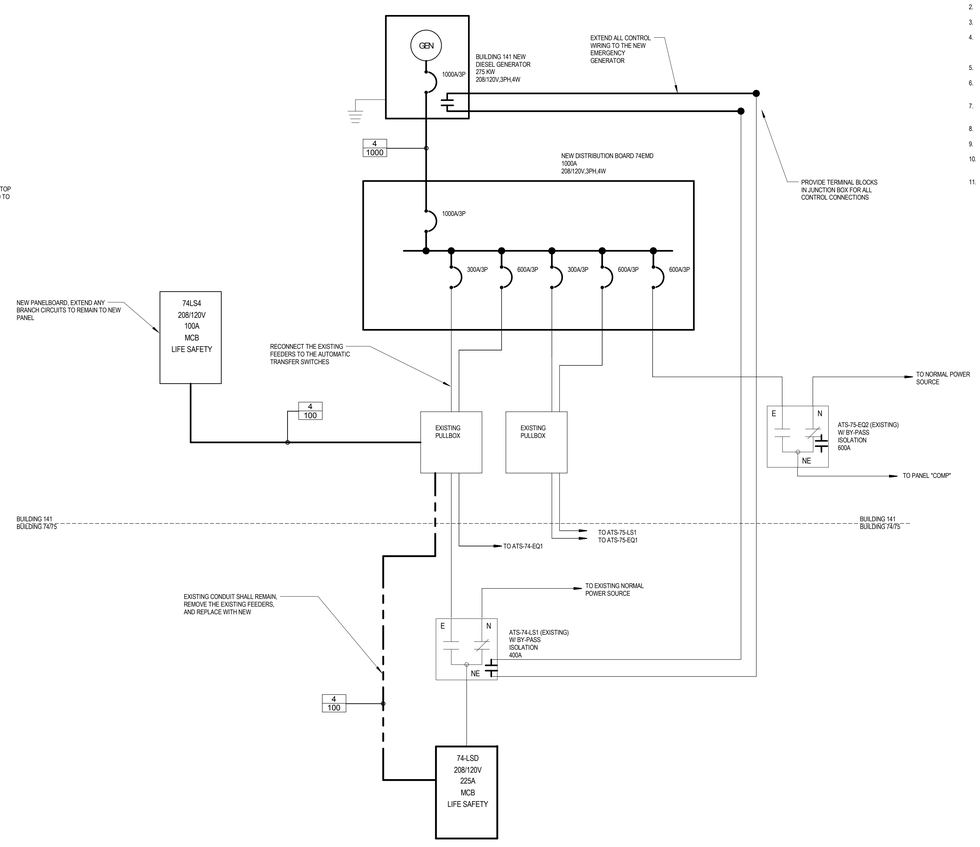
Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231



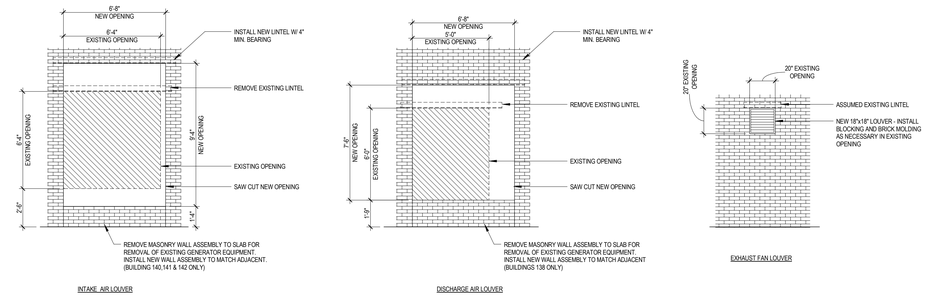
1 SINGLE LINE DEMOLITION



2 SINGLE LINE-NEW WORK

PHASING OF ELECTRICAL WORK FOR GENERATOR REPLACEMENT

1. PROVIDE A TEMPORARY EMERGENCY GENERATOR ON SITE. VERIFY EQUIPMENT IS OPERATIONAL, AND PROVIDE A 24 HOUR FUEL SOURCE, AT A MINIMUM, OR A SUFFICIENT SUPPLY FOR THE DURATION OF THE OUTAGE.
2. SCHEDULE AN OUTAGE WITH THE VAMC.
3. REMOVE THE EXISTING LOUVER AND WALL SECTION TO PERMIT GENERATOR REMOVAL.
4. DISCONNECT THE EXISTING EMERGENCY GENERATOR, FROM PANELBOARD "74EMD", AND PROVIDE A TEMPORARY CONNECTION BETWEEN PANEL "74EMD" AND TEMPORARY GENERATOR. TIE GENERATOR START CIRCUIT INTO TEMPORARY GENERATOR.
5. REMOVE EMERGENCY GENERATOR AND ALL ACCESSORIES, CONDUIT, AND WIRING.
6. INSTALL NEW EMERGENCY GENERATOR, ACCESSORIES, FUEL SUPPLY, AND ALL OTHER NECESSARY COMPONENTS.
7. REMOVE AND INSTALL NEW PANELBOARD "74LS1". REPLACE EXISTING FEEDER. CONNECT ALL GENERATOR ACCESSORIES TO PANELBOARD.
8. TEST GENERATOR WITH A LOAD BANK.
9. SCHEDULE AN OUTAGE WITH THE VAMC.
10. REMOVE TEMPORARY GENERATOR CONNECTION. REMOVE AND REINSTALL NEW PANELBOARD "74EMD", RECONNECT ALL LOADS, AND CONNECT NEW FEEDER CONDUIT FROM GENERATOR.
11. TEST EMERGENCY GENERATOR UNDER LOAD AND EXERCISE TRANSFER SWITCHES TO SIMULATE POWER LOSS.



3 WALL OPENING DETAILS - NEW LOUVERS
1/4" = 1'-0"

ELECTRICAL FEEDER SCHEDULE

	COLUMN 4
AMPS	3PH, 4W, & GROUND
100	(4) #1 & 1#6 G IN 1 1/2" C
1000	3 SETS OF (4) #500 KCMIL & 1#2/0 G IN 3 1/2" C

NOTES:
1. CONDUIT SIZES FOR THHN/THWN COPPER CONDUCTORS ONLY. OTHER CONDUCTOR TYPES MAY REQUIRE INCREASED CONDUIT SIZE.
2. GROUND CONDUCTORS SPECIFIED IS FOR EQUIPMENT GROUND PER N.E.C. UNLESS NOTED OTHERWISE.

3 TOP NUMBER REFERS TO COLUMNS
400 BOTTOM NUMBER REFERS TO ROWS (AMPS)

CONSTRUCTION DOCUMENTS

Revisions:	Date

CONSULTANTS:

SEAL

COMMONWEALTH OF VIRGINIA
JASON J. DECHECK
Lic. No. 052449
PROFESSIONAL ENGINEER

ARCHITECTS/ENGINEERS:

A|E works

6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com

AE Works Project Number: 13-028

Drawing Title
BUILDING 141 - ELECTRICAL SINGLE LINES, DETAILS, AND SCHEDULES

Approved: Project Director

Project Title:
SALEM VA - CORRECT ELECTRICAL DEFICIENCIES

Location:
1970 ROANOKE BLVD. SALEM, VA 24153

Date: 07/25/14 | **Checked:** JD | **Drawn:** TA

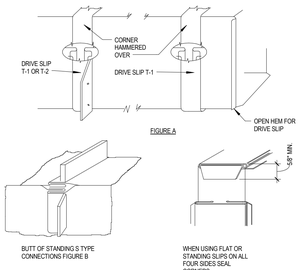
Project Number 658-13-102

Building Number 141

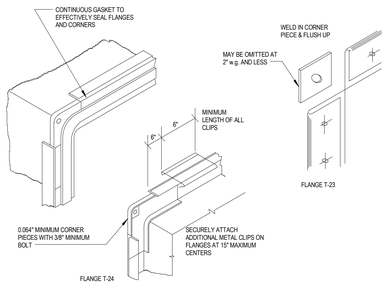
Drawing Number 141-E600

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231

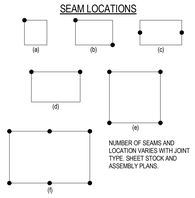


CORNER CLOSURES - SLIPS AND DRIVERS



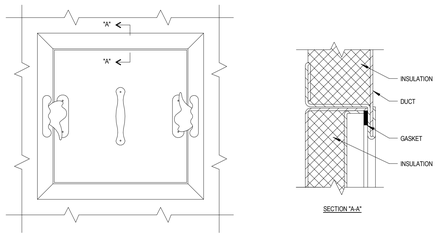
CORNER CLOSURES - FLANGES

SEAM LOCATIONS

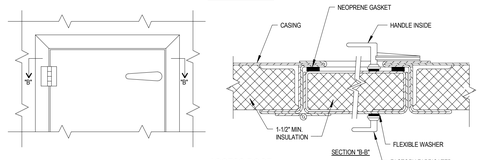


NUMBER OF SEAMS AND LOCATION VARIES WITH JOINT TYPE, SHEET STOCK AND ASSEMBLY PLANS.

1 CORNER CLOSURES
NTS



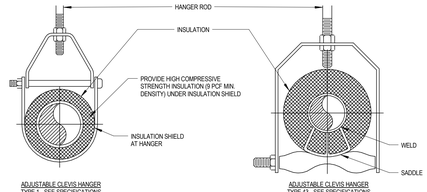
ACCESS PANEL

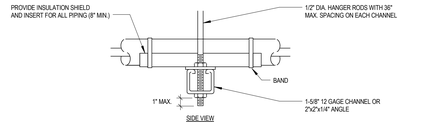


ACCESS DOOR

NOTES:
1. LATCHES SHALL BE OF THE WEDGE TYPE TO CLOSE DOORS TIGHTLY.
2. HINGES ON THE ACCESS DOORS SHALL HAVE NON-CORROSIVE PINS.
3. SEE SMACNA 2005, FIGURE 9-15

2 ACCESS PANEL & DOOR DETAIL
NTS

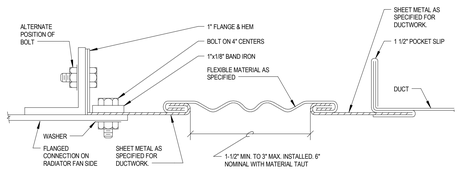




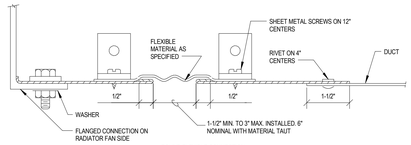
TRAPEZE HANGER FOR UP TO 1000 LB. UNIFORM LOAD

MAXIMUM PIPE/TUBING SUPPORT SPACING													
NOM. SIZE	IN. (MM)	THRU 3/4 THRU (20)	1 (25)	1 1/4 (32)	1 1/2 (40)	2 (50)	2 1/2 (65)	3 (75)	4 (100)	5 (125)	6 (150)	8 (200)	10 (250)
PIPE	FT. (M)	7 (2.1)	7 (2.1)	7 (2.1)	9 (2.7)	10 (3.0)	11 (3.4)	12 (3.7)	14 (4.1)	16 (4.9)	17 (5.2)	19 (5.8)	22 (6.7)
TUBING	FT. (M)	5 FT 5 FT	6 (1.8)	7 (2.1)	8 (2.4)	8 (2.4)	9 (2.7)	10 (3.0)	12 (3.7)	13 (4.0)	14 (4.1)	16 (4.9)	- -
NOTE: FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST SIZE ON TRAPEZE.													

3 PIPE HANGERS
NTS

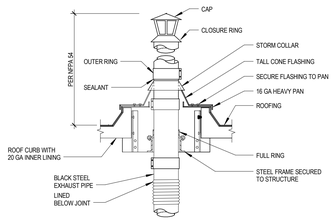


RECTANGULAR FLEXIBLE CONNECTION

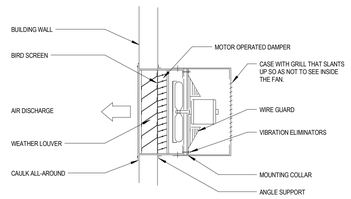


ROUND FLEXIBLE CONNECTION

4 FLEXIBLE DUCT CONNECTIONS
NTS



5 ENGINE EXHAUST STACK
NTS



6 WALL MOUNTED EXHAUST FAN
NTS

HVAC GENERAL NOTES

1. NOT ALL SYMBOLS ARE NECESSARILY USED.
2. DRAWINGS ARE DIAGRAMMATIC. CONTRACTOR TO FIELD VERIFY DUCT AND PIPE ROUTING AND COORDINATE INTERFERENCE BETWEEN TRADES PRIOR TO INSTALLATION.
3. ROOF OPENINGS, FLASHING, AND COUNTER FLASHING BY GENERAL CONTRACTOR. LOCATION OF OPENINGS BY HEATING CONTRACTOR.
4. INSTALL ALL MECHANICAL EQUIPMENT AND APPURTENANCES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, CONTRACT DOCUMENTS, APPLICABLE BUILDING, STATE, AND LOCAL CODES, SEISMIC REQUIREMENTS, ENERGY CODES, AND INSURANCE UNDERWRITER REQUIREMENTS.
5. PROVIDE ALL MATERIALS, EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERABLE MECHANICAL SYSTEMS AS INDICATED ON THE DRAWINGS, AS SPECIFIED, AND AS REQUIRED BY CODE.
6. CONTRACT DOCUMENT DRAWINGS FOR MECHANICAL WORK ARE DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY. CONTRACTOR SHALL BE RESPONSIBLE TO FIELD SURVEY ACTUAL SITE CONDITIONS AND ACCOMMODATE ACTUAL SITE CONDITIONS AS PART OF SCOPE OF WORK AT NO COST TO OWNER.
7. COORDINATE CONSTRUCTION OF ALL MECHANICAL WORK WITH ARCHITECTURAL, STRUCTURAL, CIVIL, AND ELECTRICAL WORK, ETC. SHOWN ON OTHER CONTRACT DOCUMENT DRAWINGS.
8. MAINTAIN A MINIMUM OF 6'-8" CLEARANCE TO UNDERSIDE OF PIPES, DUCTS, CONDUITS, SUSPENDED EQUIPMENT, SUPPORTS, ETC., THROUGHOUT ACCESS ROUTES IN MECHANICAL ROOMS.
9. ALL TESTS SHALL BE COMPLETED AND ACCEPTED BY THE INSPECTOR BEFORE ANY MECHANICAL EQUIPMENT OR PIPING INSULATION IS APPLIED.
10. ALL EQUIPMENT SUBMITTALS AND SHOP DRAWINGS REQUIRED BY THE SPECIFICATIONS SHALL BE APPROVED BY ENGINEER PRIOR TO PURCHASE, FABRICATION, AND INSTALLATION.
11. ALL HEATING DEVICES AND SURFACES WITH ELEVATED TEMPERATURES WHICH CAN BE ACCESSED OR COME IN CONTACT WITH OWNER PERSONNEL SHALL BE PROTECTED, INSULATED, OR CONTROLLED TO REMAIN BELOW 120°F.
12. ALL VALVES SHALL BE ADJUSTED FOR SMOOTH AND EASY OPERATION.
13. TESTING ADJUSTING AND BALANCING (TAB) AGENCY SHALL BE A MEMBER OF THE ASSOCIATED AIR BALANCING COUNCIL (AABC), THE NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB), OR THE TESTING, ADJUSTING AND BALANCING BUREAU (TABB). TAB FIRM SHALL HAVE A MINIMUM OF 5 YEARS EXPERIENCE ON SIMILAR PROJECTS. PERFORM TAB IN ACCORDANCE WITH THE REQUIREMENTS OF THE TAB PROCEDURAL STANDARD RECOMMENDED BY THE TAB TRADE ASSOCIATION THAT APPROVED THE TAB FIRM'S QUALIFICATIONS.
14. WHERE TWO OR MORE ITEMS OF THE SAME TYPE OF EQUIPMENT ARE REQUIRED, THE PRODUCTS OF A SINGLE MANUFACTURER SHALL BE USED.
15. COORDINATE ALL FINAL EQUIPMENT CONNECTIONS WITH MANUFACTURERS' CERTIFIED DRAWINGS. COORDINATE AND PROVIDE ALL DUCTWORK AND PIPING TRANSITIONS REQUIRED FOR FINAL EQUIPMENT CONNECTIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DUCTWORK AND PIPING DIMENSIONS BEFORE FABRICATION.
16. ALL CONTROL WIRE AND CONDUIT SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE, DIVISION 26 OF THE SPECIFICATIONS, ALL LOCAL CODES, AND OWNER'S INSURANCE UNDERWRITER REQUIREMENTS.
17. WHEN MECHANICAL WORK (HVAC, PLUMBING, FIRE PROTECTION, CONTROLS, ETC.) IS SUBCONTRACTED BY THE MC, IT SHALL BE THE MECHANICAL CONTRACTOR'S RESPONSIBILITY FOR COORDINATING SUBCONTRACTORS AND THEIR ASSOCIATED SCOPE OF WORK. WHEN DISCREPANCIES ARISE PERTAINING TO WHICH SUBCONTRACTOR PROVIDES A PARTICULAR ITEM OF THE MECHANICAL CONTRACT OR WHICH SUBCONTRACTOR PROVIDES FINAL CONNECTIONS FOR A PARTICULAR ITEM OF THE MECHANICAL CONTRACT, IT SHALL BE BROUGHT TO THE ATTENTION OF THE MECHANICAL CONTRACTOR AND HIS DECISION SHALL BE FINAL.
18. THE LOCATIONS AND SIZES OF ALL ITEMS SHOWN ON THE DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS THAT ARE NOT DEFINITELY FIXED BY DIMENSIONS ARE APPROXIMATE ONLY. THE EXACT LOCATIONS AND SIZES NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS SHALL BE DETERMINED BY THE PROJECT SITE CONDITIONS AND SHALL HAVE THE APPROVAL OF THE ENGINEER BEFORE BEING INSTALLED. DO NOT SCALE DRAWINGS.
19. PLAN DRAWINGS AND SECTION CUTS WHICH SPECIFICALLY IDENTIFY SERVICE ROUTE OFFSETS, ELEVATION CHANGES, OBSTRUCTIONS, ACCESS DOORS, BALANCING DEVICES, ETC. ARE SHOWN FOR CLARITY WHERE SPECIFIC KNOWN CONDITIONS EXIST. MECHANICAL CONTRACTOR SHALL COORDINATE EQUIPMENT, DUCTWORK, AND PIPING ROUTINGS WITH ALL OTHER TRADES. REQUIREMENTS NOT SPECIFICALLY IDENTIFIED SHALL NOT BE INTERPRETED AS EXCLUSION FROM CONTRACTOR'S SCOPE OF WORK. CONTRACTOR SHALL BE RESPONSIBLE FOR ACTUAL SITE CONDITIONS AND SHALL INCLUDE SUCH CONDITIONS IN SCOPE OF WORK AT NO ADDITIONAL COST TO THE OWNER.
20. ALL MISCELLANEOUS STEEL REQUIRED TO ENSURE PROPER INSTALLATION AND SUPPORT OF MECHANICAL WORK AS SHOWN IN DETAILS FOR PIPING, DUCTWORK AND EQUIPMENT (UNLESS OTHERWISE NOTED) SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
21. PROVIDE ACCESS DOORS AND PANELS AS SPECIFIED FOR INSTALLATION IN WALLS AND CEILINGS, WHERE REQUIRED, TO SERVICE, BALANCE, ADJUST, MAINTAIN, AND/OR INSPECT DAMPERS, VALVES, SMOKE DETECTORS, CONTROLS, AND OTHER CONCEALED MECHANICAL EQUIPMENT. ACCESS PANELS SHALL BE GIVEN TO THE GENERAL CONTRACTOR FOR INSTALLATION. ACCESS PANEL LOCATIONS SHALL BE COORDINATED WITH ALL DISCIPLINES.
22. ALL EQUIPMENT, PIPING, DUCTWORK, ETC., SHALL BE SUPPORTED AS DETAILED, SPECIFIED AND AS REQUIRED TO PROVIDE A VIBRATION FREE INSTALLATION.
23. ALL DUCTS SHALL BE GROUNDED ACROSS FLEXIBLE CONNECTIONS WITH FLEXIBLE COPPER GROUNDING STRAPS. GROUNDING STRAPS SHALL BE BOLTED OR SOLDERED TO BOTH THE EQUIPMENT AND THE DUCT.
24. ALL PIPING AND DUCTWORK SHALL CLEAR DOORS, WINDOWS, EQUIPMENT CLEARANCES, MAINTENANCE REQUIREMENTS, CODE SETBACKS, ETC. TO ASSURE PROPER OPERATION, INSPECTION, AND MAINTENANCE.
25. UNLESS OTHERWISE SHOWN, LOCATE ALL ROOM THERMOSTATS 48" (CENTER LINE) ABOVE FINISHED FLOOR IN ACCORDANCE WITH ADA REQUIREMENTS. NOTIFY THE ENGINEER OF ANY ROOMS WHERE THE ABOVE LOCATION CAN NOT BE MAINTAINED OR WHERE THERE IS A QUESTION ON LOCATION. COORDINATE FINAL LOCATIONS WITH OWNER.
26. LOCATE ALL MECHANICAL EQUIPMENT (UNIT HEATERS, ETC.,) FOR UNOBSTRUCTED ACCESS TO UNIT ACCESS PANELS, FILTERS, CONTROLS AND VALVING.
27. PROVIDE FLEXIBLE CONNECTIONS IN ALL DUCTWORK SYSTEMS (SUPPLY, RETURN AND EXHAUST) CONNECTED TO FANS AND OTHER EQUIPMENT WHICH REQUIRE VIBRATION ISOLATION. FLEXIBLE CONNECTIONS SHALL BE PROVIDED AT THE POINT OF CONNECTION TO THE EQUIPMENT UNLESS OTHERWISE INDICATED.
28. ALL LOUVERS SHALL BE FURNISHED AND INSTALLED BY THE GENERAL CONTRACTOR (UNLESS OTHERWISE NOTED). GENERAL CONTRACTOR SHALL COORDINATE SIZES, LOCATIONS, AND CONNECTIONS WITH MECHANICAL CONTRACTOR. DUCTWORK CONNECTIONS TO LOUVERS SHALL BE FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR.
29. PROVIDE AN AIR VENT AT THE HIGH POINT OF EACH DROP IN HYDRONIC WATER PIPING SYSTEMS. ALL PIPING SHALL SLOPE TO LOW POINTS. PROVIDE HOSE END DRAIN VALVES AT THE BOTTOM OF ALL RISERS AND LOW POINTS.
30. INSTALL PIPING SO THAT ALL VALVES, STRAINERS, UNIONS, TRAPS, FLANGES, AND OTHER APPURTENANCES REQUIRING ACCESS ARE ACCESSIBLE.
31. ALL ISOLATION VALVES SHALL BE IN A LOCATION AND ELEVATION WHICH ALLOWS FOR EQUIPMENT AND BRANCH PIPING REMOVAL, WHILE MAINTAINING SERVICE UPSTREAM OF THE ISOLATION VALVE.
32. ALL BALANCING VALVES AND ISOLATION VALVES USED TO ADJUST FLOW RATES SHALL BE PROVIDED WITH POSITION INDICATORS AND MAXIMUM ADJUSTABLE STOPS (MEMORY STOPS).
33. ALL ISOLATION VALVES (EXCEPT CONTROL VALVES), STRAINER, AND PIPING SPECIALTIES AND STRAINERS SHALL BE FULL LINE SIZE BEFORE REDUCING SIZE TO MAKE CONNECTIONS TO EQUIPMENT AND CONTROLS.
34. MECHANICAL JOINTS SUCH AS UNIONS, FLANGES, OR THREADED FITTINGS SHALL BE INSTALLED AT EACH EQUIPMENT CONNECTION, IN BYPASSES, AT FLOOR PENETRATIONS, AT CONTROL DEVICES, AND IN LONG PIPE RUNS (100 FEET OR MORE) TO PERMIT DISASSEMBLY FOR ALTERATION AND REPAIRS.
35. MEASURE, CUT, AND INSTALL PIPE LENGTH ACCURATELY TO MINIMIZE MISALIGNMENT. INSTALL ALL PIPING WITHOUT FORCING OR SPRINGING.
36. PROVIDE FLEXIBLE CONNECTIONS IN ALL PIPING SYSTEMS CONNECTED TO PUMPS AND OTHER EQUIPMENT WHICH REQUIRE VIBRATION ISOLATION (EXCEPT WATER COILS). FLEXIBLE CONNECTIONS SHALL BE PROVIDED AS CLOSE TO THE EQUIPMENT AS POSSIBLE OR AS INDICATED ON THE DRAWINGS.
37. PROVIDE VIBRATION ISOLATION FOR ALL MECHANICAL EQUIPMENT TO PREVENT VIBRATION TRANSMISSION TO BUILDING STRUCTURE.
38. CONCRETE HOUSEKEEPING PADS SHALL BE FURNISHED AND INSTALLED BY THE GENERAL CONTRACTOR. MECHANICAL CONTRACTOR SHALL PROVIDE EQUIPMENT WEIGHTS, SIZES, AND LOCATION TO GENERAL CONTRACTOR. MINIMUM CONCRETE PAD THICKNESS SHALL BE IN ACCORDANCE WITH STRUCTURAL DETAILS. PAD SHALL EXTEND BEYOND THE EQUIPMENT FOOTPRINT A MINIMUM OF 6 INCHES ON EACH SIDE.
39. ALL DUCTWORK, PIPING, AND EQUIPMENT SUPPORTED FROM STRUCTURAL STEEL SHALL BE COORDINATED WITH GENERAL CONTRACTOR. ALL ATTACHMENTS TO STEEL MEMBERS, BAR JOISTS, TRUSSES, OR JOIST GIRDERS SHALL BE APPROVED BY STRUCTURAL ENGINEER. WELDING TO STRUCTURAL MEMBERS SHALL NOT BE PERMITTED.
40. MECHANICAL EQUIPMENT, DUCTWORK, AND PIPING SHALL NOT BE SUPPORTED FROM ROOF OR DECK ASSEMBLY. SUPPORTS SHALL ATTACH TO STRUCTURAL MEMBERS. COORDINATE WITH STRUCTURAL DRAWINGS.
41. PROVIDE MANUFACTURER'S MATCHING ROOF CURBS FOR ALL ROOF MOUNTED EQUIPMENT. COORDINATE ACTUAL ROOF PITCH AND CONSTRUCTION DETAILS WITH GENERAL CONTRACTOR. PROVIDE SLOPED CURBS PER MANUFACTURER'S RECOMMENDATIONS. GENERAL CONTRACTOR SHALL INSTALL ROOF CURBS AND FLASHING PER ROOFING MANUFACTURER'S INSTALLATION REQUIREMENTS.

HVAC SYMBOLS

DOUBLE LINE SHEETMETAL SYMBOLS	DESCRIPTION
T	DUCT/WALL TEMPERATURE SENSOR, ELECTRIC
M	MOTORIZED DAMPER
B	BACKDRAFT DAMPER
FD	FIRE DAMPER AT FIRE WALL (PROVIDE ACCESS PANEL IN DUCT AND CEILING)
	SMOKE DAMPER/DETECTOR DETECTOR BY E.C. DAMPER BY H.C.
F/SD	COMBINATION FIRE/SMOKE DAMPER
FD FD	FIRE DAMPER IN VERTICAL DUCT THRU FLOOR OR HORIZONTAL DUCT ABOVE CEILING (PROVIDE ACCESS PANEL IN DUCT AND WALL OR CEILING)
	ACCESS DOOR ON BOTTOM OF DUCT (HINGED & GASKETED)
AD	ACCESS DOOR ON SIDE OF DUCT (HINGED & GASKETED)

PIPELINE SYMBOLS

	BALL VALVE
	GATE VALVE
	STRAINER
	UNION
T	THERMOMETER
P	PRESSURE GAUGE
	PRESSURE REDUCING VALVE
	TWO-WAY MODULATING CONTROL VALVE
	SAFETY VALVE OR PRESSURE RELIEF
A	AUTOMATIC AIR VENT
M	MANUAL AIR VENT
	TWO-WAY CONTROL VALVE (TWO POSITION TYPE)
	MOTORIZED VALVE
	PIPING TURNED UP
	PIPING TURNED DOWN
	TEE - OUTLET UP
	TEE- OUTLET
	SIDE CONNECTION
	CAPPED OUTLET
	DIRECTION OF FLOW
	PIPE BREAK (SINGLE LINE)

CONSTRUCTION DOCUMENTS

Revisions:	Date

CONSULTANTS:

SEAL

COMMONWEALTH OF VIRGINIA
JASON J. DECHECK
Lic. No. 052449
PROFESSIONAL ENGINEER

ARCHITECTS/ENGINEERS:

A|E works

6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com

AE Works Project Number: 13-028

Drawing Title
HVAC DETAILS - GENERATOR BUILDING 141

Approved: Project Director

Project Title:
SALEM VA - CORRECT ELECTRICAL DEFICIENCIES

Location:
1970 ROANOKE BLVD. SALEM, VA 24153

Date: 07/25/14 | **Checked:** SPL | **Drawn:** SPL

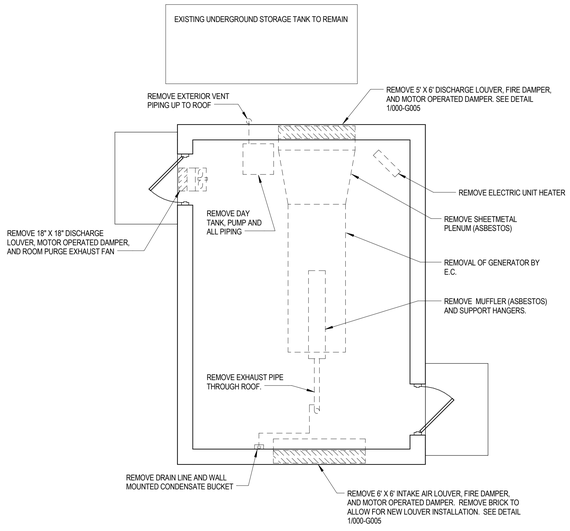
Project Number
658-13-102

Building Number
141

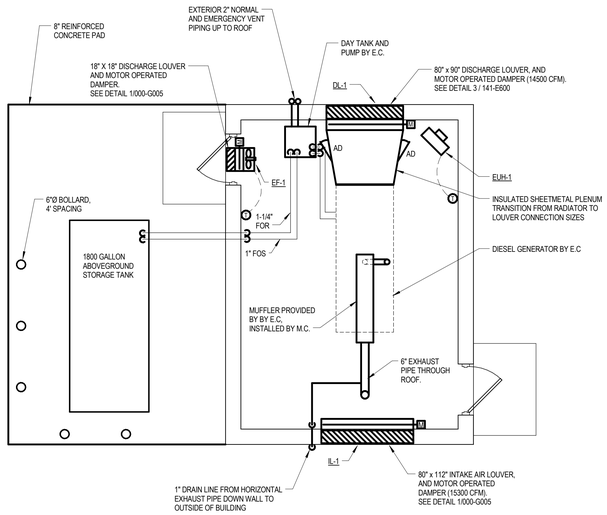
Drawing Number
141-H100

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231



1 HVAC DEMOLITION WORK PLAN - GENERATOR BUILDING 141
1/4" = 1'-0"



2 HVAC NEW WORK PLAN - GENERATOR BUILDING 141
1/4" = 1'-0"

HAZARDOUS MATERIALS ALERT

NOTE: THE EXISTING GENERATOR INSTALLATION IS KNOWN TO CONTAIN ASBESTOS. THE FOLLOWING ITEMS ARE POSITIVE FOR ASBESTOS CONTAINING MATERIAL:

1. RADIATOR EXHAUST PLENUM
2. EXHAUST SILENCER INSULATION

FOLLOW ALL ABATEMENT PROCEDURES AS DIRECTED BY THE VAMC FACILITY PROCEDURES.

HVAC CONTROL SEQUENCES

VENTILATION:

UPON A RISE IN SPACE TEMPERATURE ABOVE SET POINT (80°F, ADJ.), THE INTAKE DAMPER SHALL MODULATE OPEN TO MINIMUM POSITION. THE EXHAUST FAN SHALL ENERGIZE. UPON A DROP IN SPACE TEMPERATURE THE FAN SHALL TURN OFF AND THE INTAKE DAMPER SHALL CLOSE.

HEATING:

UPON A DROP IN SPACE TEMPERATURE BELOW SPACE SET POINT (45°F, ADJ.), THE UNIT HEATER SHALL ENERGIZE. UPON A RISE IN SPACE TEMPERATURE, THE UNIT HEATER SHALL TURN OFF.

GENERATOR:

UPON THE GENERATOR INDICATED TO TURN ON, THE INTAKE AND DISCHARGE DAMPERS SHALL FULLY OPEN AND SHALL BE CONFIRMED OPEN BY AN END SWITCH. IF THE END SWITCH IS NOT SATISFIED AN ALARM SHALL BE GENERATED AND SENT TO THE STATION DDC SYSTEM. THE UNIT HEATER AND EXHAUST FAN SHALL BE OFF IN AN OVERRIDE CONDITION.

ONCE THE GENERATOR IS OFF AND THE RADIATOR FAN IS STOPPED, THE INTAKE AND DISCHARGE DAMPERS SHALL CLOSE. THE EXHAUST FAN AND UNIT HEATER SHALL RESUME THEIR STANDARD OPERATION.

ELECTRIC UNIT HEATER SCHEDULE

MARK	SERVICE	CAPACITY (kW)	STEPS	TEMP RISE	FAN CFM	ELECTRICAL DATA VOLT	PH	MCA
EUH-1	GENERATOR BLDG	7.5	2	49 F	650	208	3	36

NOTES:
1. REMOTE PROGRAMMABLE THERMOSTAT INTERLOCKED WITH CONTROL SYSTEM

EXHAUST FAN SCHEDULE

MARK	TYPE	DRIVE	BALANCED CFM	SP	HP	ELECTRICAL VOLTAGE	PHASE	AMP	MAX. FUSE	RPM
EF-1	PROPELLER	DIRECT	1000	0.5	1/2	120	1	6.8	15	1496

NOTES:
1. REMOTE PROGRAMMABLE THERMOSTAT INTERLOCKED WITH CONTROL SYSTEM

LOUVER SCHEDULE

TAG	SERVICE	TYPE	AIRFLOW (CFM)	SIZE (IN)	FREE AREA (SF)	VELOCITY MAX (FPM)	MATERIAL
IL-1	INTAKE	DRAINABLE STATIONARY	15300	80 x 112	28	550	ALUMINUM
DL-1	DISCHARGE	DRAINABLE STATIONARY	14500	80 x 90	22	650	ALUMINUM

NOTES:
1. MAX WATER PENETRATION TO BE 0.01 OZ / SF AT 1000 FPM

ABOVE GROUND STORAGE TANK SCHEDULE

TAG	SERVICE	FUEL TYPE	TANK TYPE	CAPACITY (GALLONS)	LENGTH (IN)	DIAMETER (IN)	WEIGHT (LBS)
AST-1	GENERATOR	NO. 2 FUEL OIL	ABOVEGROUND	1800	150	62	--

NOTES:
1. REFER TO SPECIFICATION SECTION 231000 FOR ADDITIONAL REQUIREMENTS.

NORTH

CONSTRUCTION DOCUMENTS

Revisions:	Date

CONSULTANTS:

SEAL

COMMONWEALTH OF VIRGINIA
JASON J. DECHECK
Lic. No. 052449
PROFESSIONAL ENGINEER

ARCHITECTS/ENGINEERS:

A|E works
6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com
AE Works Project Number: 13-028

Drawing Title
HVAC DEMOLITION / NEW WORK PLAN - GENERATOR BUILDING 141

Approved: Project Director

Project Title:
SALEM VA - CORRECT ELECTRICAL DEFICIENCIES

Location:
1970 ROANOKE BLVD. SALEM, VA 24153

Date: 07/25/14 | **Checked:** SPL | **Drawn:** SPL

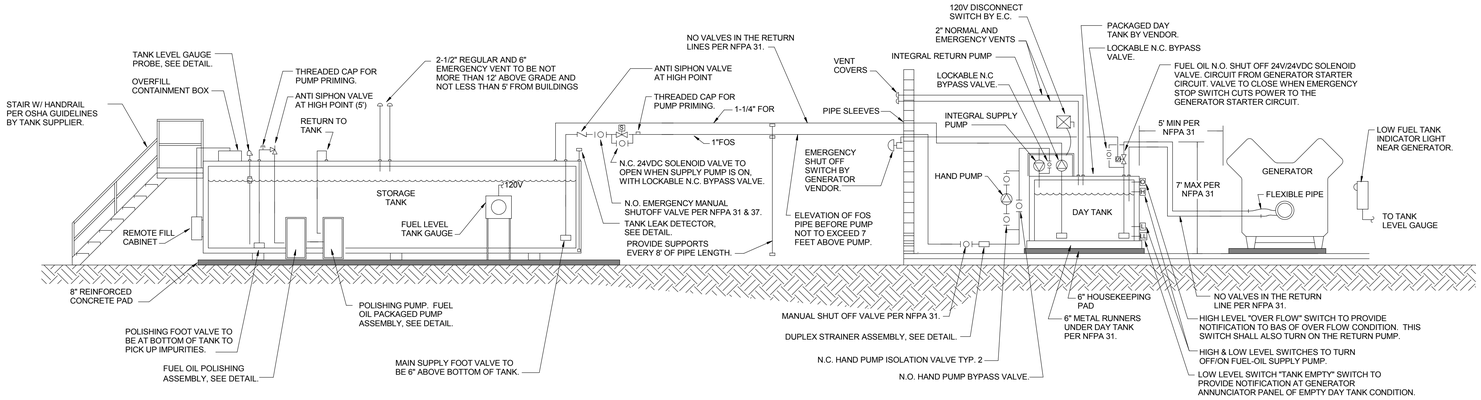
Project Number 656-13-102

Building Number 141

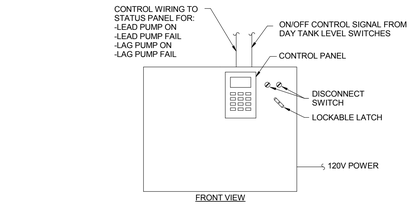
Drawing Number 141-H101

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231

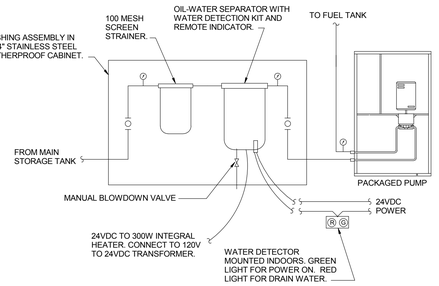


1 FUEL OIL SCHEMATIC DIAGRAM
NTS

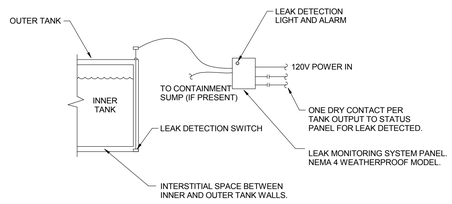


NOTES:
1. WEATHERPROOF ENCLOSURE NEMA 3R.
2. ALL PARTS SHOWN TYPICAL.
3. MAKE: SIMPLEX SPS OR APPROVED EQUAL.
4. PROVIDE AUTOMATIC LEAD/LAG SEQUENCE OF 2 PUMPS.

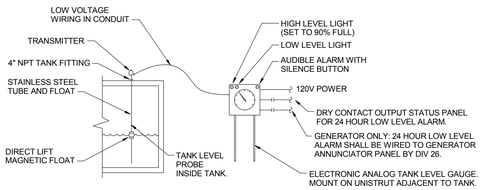
2 DUPLEX FUEL OIL PACKAGED PUMP ASSEMBLY DETAIL
NTS



3 FUEL OIL POLISHING ASSEMBLY DETAIL
NTS



4 TANK LEAK DETECTION DETAIL
NTS



ALARM NOTES:
1. LOW LEVEL ALARM TO BE SET TO INITIATE SIGNAL WHEN FUEL LEVEL IS DOWN TO 24 HOURS WORTH OF FUEL FOR THE EQUIPMENT AT FULL CAPACITY.

2. RED INDICATOR LIGHT TO TURN ON WHEN FUEL OIL TANK LEVEL IS BELOW LOW LEVEL SETPOINT. LABEL RED INDICATOR LIGHT "LOW STORAGE TANK FUEL LEVEL".

3. EMPTY FLOAT POSITION TO MATCH HEIGHT OF FOOT VALVE HEIGHT.

5 TANK LEVEL GAUGE DETAIL
NTS

SEQUENCE OF OPERATIONS:

GENERATOR FUEL-OIL SYSTEM

1. DAY TANK TO OPERATE INDEPENDENTLY OF GENERATOR TO PROVIDE ABOUT A 3 HOUR SUPPLY OF FUEL-OIL.
2. DIVISIONS 23 AND 26 TO COORDINATE INSTALLATION OF GENERATOR DAY TANK.

FUEL-OIL POLISHING CONTROL

1. A SEPARATE PUMP AND FILTER SHALL RECIRCULATE THE TANK FUEL TO REMOVE WATER AND IMPURITIES.
2. TIMECLOCK SHALL ENABLE/DISABLE PUMP. PUMP TO BE ENABLED FOR TEN HOURS PER DAY.
3. OIL-WATER SEPARATOR SHALL HAVE AN INTEGRAL 24VDC FLOAT SWITCH WITH REMOTE INDICATOR LIGHTS FOR ON AND FULL. BLOWDOWN OF OIL-WATER SEPARATOR SHALL BE MANUAL.

SAFETIES

1. PROVIDE A 24V NORMALLY OPEN EMERGENCY SHUTOFF SOLENOID VALVE WITH BYPASS IN THE SUPPLY LINE BETWEEN THE DAY TANK AND GENERATOR. LOCATE THE SHUTOFF SWITCH AT EXIT DOOR IN ROOM. PROVIDE LABEL FOR SWITCH: "EMERGENCY SHUTOFF"- GENERATOR.
2. DAY TANK TO INCLUDE INTEGRAL INTERSTITIAL SPACE LEAK DETECTION SENSOR. ALARM AT DAY TANK ONLY.
3. HAND PUMP TO BE USED TO FILL THE DAY TANK IN CASE OF PUMP FAILURE. PROVIDE BYPASS AROUND PUMPS AND SOLENOID VALVES TO ALLOW EMERGENCY HAND PUMP USE.

ELECTRICAL COORDINATION

1. ALL FUEL-OIL RELATED PUMPS, VALVES, AND CONTROLS TO BE CONNECTED TO EMERGENCY POWER.
2. PROVIDE 120V TO THE FOLLOWING:
   - TANK FUEL LEVEL GAUGE
   - POLISHING FILTER HEATER (LOW VOLTAGE)
   - TANK LEAK DETECTOR
   - LOW VOLTAGE CONTROLS
3. PROVIDE 24VDC GENERATOR CIRCUIT POWER OR 120V TO 24VDC FOR THE FOLLOWING:
   - SOLENOID VALVES
   - POLISHING OIL-WATER SEPARATOR HEATER - 300 WATTS
   - POLISHING OIL-WATER SEPARATOR WATER DETECTOR

FUEL OIL NOTES:

1. COORDINATE DELIVERY OF FUEL-OIL WITH OWNER PREFERRED VENDOR. PROVIDE FULL TANKS AT FINAL INSPECTION.
2. PROVIDE FUEL STABILIZER ADDITIVE WITH THE FOLLOWING CHARACTERISTICS. MIX RATIO PER MANUFACTURER'S RECOMMENDATIONS- TYPICALLY ONE GALLON OF STABILIZER PER 1000 GALLONS OF FUEL-OIL.

CONSTRUCTION DOCUMENTS

Revisions:	Date

CONSULTANTS:

SEAL

JASON J. DECHECK
COMMONWEALTH OF VIRGINIA
Lic. No. 052449
PROFESSIONAL ENGINEER

ARCHITECTS/ENGINEERS:

A|E works

6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com

AE Works Project Number: 13-028

Drawing Title
HVAC FUEL OIL SYSTEM DETAILS - GENERATOR BUILDING 141

Approved: Project Director

Project Title:
SALEM VA - CORRECT ELECTRICAL DEFICIENCIES

Location:
1970 ROANOKE BLVD. SALEM, VA 24153

Date: 07/25/14 | **Checked:** SPL | **Drawn:** SPL

Project Number
658-13-102

Building Number
141

Drawing Number
141-H102

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231

Start Up View

Proj. Name: SALEM VA - CORRECT ELECTRICAL DEFICIENCIES

Proj. #: 658-13-102

Proj. Issue Date: 07/25/14

A|E works

Project Team:

Proj. Manager: Robert Burlett

Proj. Designer: XX

Proj. Architect: XX

Plumbing Eng: XX

Mech. Eng: XX

Elec. Eng: Jason Decheck

Technology: XX

Interiors: XX

Project Schedule:

Consultant Contact Info:

Revit Notes:

1. Export Revit plans to AutoCAD every Monday and Thursday morning. Export more frequently as deadlines approach and / or significant changes are made.
2. Create a new local file daily.
3. Verify you are working on the correct workset
4. Resolve warning messages frequently.
5. Link AutoCAD files in on separate worksets.
6. Purge file of all unnecessary components.